

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re the application of
Shigekazu NAGAI et al.

U.S. Serial No. 10/600,710

Group Art Unit: 3682

Filing Date: June 23, 2003

Examiner: J. M. Krause

Title: ELECTRIC ACTUATOR

SUPPLEMENTAL RESPONSE TO FINAL OFFICE ACTION
FOLLOWING RECEIPT OF ADVISORY ACTION
TO PLACE APPLICATION IN CONDITION FOR ALLOWANCE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

In further response to the final Office Action dated February 21, 2006, please amend the above-identified application as indicated below. The amendments place the application in immediate condition for allowance by incorporating into the independent claim the subject matter that has been indicated by the Patent Office as reciting allowable subject matter.

Amendments to the Claims appear on pages 2 to 4 of this paper, with the applicant's **REMARKS** commencing on page 5.

Amendments to the Claims

The following listing of claims replaces all prior versions and listings of claims in the present application:

1. (Currently Amended) An electric actuator comprising:
 - a main body unit;
 - a rotary driving source which is connected substantially in parallel to an axis of said main body unit and which is driven and rotated in accordance with an electric signal;
 - a gear mechanism which transmits rotary driving force of said rotary driving source; and
 - a feed screw mechanism which converts rotary motion transmitted by said gear mechanism into rectilinear motion and which includes a feed screw shaft provided movably back and forth within said main body unit and projecting outside of said main body unit,
said feed screw mechanism including a feed screw nut which is externally fitted to said feed screw shaft to be meshed with said gear mechanism and which is integrally formed with a gear section having a plurality of teeth arranged circumferentially about said gear section,
- wherein said main body unit includes a tube member and a pair of cover members which are connected to both ends of said tube member, and a piston, which is slidably displaceable along an inner wall surface of said tube member, is connected to an end of said feed screw shaft, and

wherein said piston is supported between a pair of collar members, holes are formed in said pair of cover members, and said collar members are capable of entering said holes.

2. (Canceled)

3. (Previously Presented) The electric actuator according to claim 1, wherein said main body unit is provided with a cushion mechanism which absorbs shock exerted on said piston when said piston arrives at an end of displacement.

4. (Previously Presented) The electric actuator according to claim 3, wherein said cushion mechanism is provided with cushion chambers which are compressed by said piston, and said cushion mechanism has cushion valves which adjust flow rates of air discharged from said cushion chambers to the atmosphere.

5. (Canceled)

6. (Currently Amended) The electric actuator according to {claim 5} claim 1, wherein cushion packings are installed to said holes for sealing function by surrounding outer circumferential surfaces of said collar members.

7. (Original) The electric actuator according to claim 1, wherein said gear mechanism includes a first gear and a second gear, said first gear is coaxially connected to a rotary driving

shaft of said rotary driving source disposed in parallel to an axis of said feed screw shaft, said second gear is provided between said first gear and said feed screw shaft, teeth of said second gear is meshed with teeth of said first gear, and said gear section of said feed screw nut meshes with said teeth of said second gear.

8. (Original) The electric actuator according to claim 1, wherein a first bearing and a second bearing are arranged at one end and the other end of said feed screw nut, respectively, for rotatably supporting said feed screw nut.

9. (Original) The electric actuator according to claim 1, wherein said gear section is provided on a circumferential surface of an annular projection which is integrally formed at a central portion of an outer circumferential surface of said feed screw nut.

10. (Previously Presented) The electric actuator according to claim 1, wherein said piston has a polygonal cross-sectional shape, and said piston slides along said inner wall surface of said tube member having a shape corresponding to said cross-sectional shape of said piston, thereby preventing said piston from rotation.

REMARKS

The final Office Action dated February 21, 2006 and the Advisory Action of June 8, 2006 have been received and carefully considered. The above additional amendments and the following remarks are being submitted as a full and complete response to these Office Actions.

Claim 1 has been amended to incorporate the full subject matter of former claim 5, which has now been canceled, while claim 6 has been amended to depend from amended claim 1.

Initially, it is noted that certain errors, presumably unintentional, were made in the Advisory Action. First, in item 7, it was stated that the proposed amendments "will not be entered"; however, no claim amendments were made whatsoever in the applicant's response of May 15, 2006. Secondly, the status of claims indicated in the Advisory Action stated that all claims 1 and 3-10 were rejected; however, in the final Office Action, claims 5 and 6 were not rejected, but rather, were only objected to and were indicated to be allowable if rewritten in independent form. (See, page 7, item 6, of the final Office Action.)

At any rate, in the present Supplemental Response, the claims have now been amended to accept the subject matter that was indicated to be allowable in the final Office Action. More specifically, claim 1 has been rewritten to include the full subject matter of allowable claim 5, whereas claim 6 has been amended to depend from amended claim 1.

Accordingly, the amended claims are now in immediate condition for allowance, based on the Examiner's own statements made in the final Office Action.

For the foregoing reasons, it is respectfully submitted that the claimed invention is not anticipated and would not have been obvious to a person skilled in the art at the time the present invention was made. Withdrawal of the rejections, with allowance of pending claims 1, 3-4 and 6-10, is respectfully requested.

Fees for one-month extension of time, until June 21, 2006, have been paid, and no other fees are currently due. Notwithstanding, in the event that any fees, or deficiencies in fees, are deemed necessary in connection with this or any accompanying communication, such fees may be charged to the Attorney's Deposit Account No. 07-2519.

Respectfully submitted,



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